Transportation Advisory Committee
Regular Meeting
Thursday, July 16, 2020
7:00pm
Remote Meeting

The regular meeting of the Matthews Transportation Advisory Committee will be conducted remotely using the Zoom virtual meeting platform.

TO WATCH LIVE: The meeting will be available via Zoom. To join from a PC, Mac, iPad, iPhone or Android device, click this URL: https://zoom.us/j/96247741607?pwd=QnBCZlcraTZEWTd4Z3BRV3ZuSnhtQT09 An account is not necessary to join.

TO LISTEN LIVE: The meeting audio will be available by calling 888-788-0099 (Toll-free) or 877-853-5247 (Toll-free). Meeting ID: 962 4774 1607 Password: 736841

1. Call to order – Stevens
2. Roll Call and Determination of Quorum – Hough
3. Approval of the Minutes from June 18, 2020 meeting (attached) – Stevens
4. Announcements – Staff
5. Unfinished Business
    a. Town Vision Statement #2 - https://www.matthewsnc.gov/files/documents/VisionStatements20191561034636013019PM.pdf
    b. Review the TAC Bylaws Article IV (revision markup from June meeting attached)
    c. Town Committee appointment process
    d. Privette Rd alignment with Pleasant Plains Rd
    e. Speed hump policy review

i. Current town policy - https://www.matthewsnc.gov/files/documents/SpeedHumpPolicy13411116261102 16AM.pdf

ii. Current petition - https://www.matthewsnc.gov/files/documents/NeighborhoodDevicesPetition1342115802010320AM.pdf

iii. Apex, NC Example - https://www.apexnc.org/205/Traffic-Calming-Program

iv. Ayden, NC Example – attached

v. Comments from Vince Manno - attached

6. New Business – Habina

   a. Rezoning cases - https://www.matthewsnc.gov/pview.aspx?id=20799&catid=567

   b. Board of Commissioners Update - https://www.matthewsnc.gov/pview.aspx?id=20784

   c. Status of NCDOT and Town Transportation Projects - https://www.matthewsnc.gov/pview.aspx?id=20847&catid=567

   d. Review TAC applications for candidates to fill vacant position

7. Adjournment – Stevens

Transportation Advisory Committee

Draft Minutes

June 18, 2020 Meeting

1. Call to order – Stevens 7:05pm
2. Roll Call and Determination of Quorum – Hough
   a. Members present: Bill Stevens (Chair), Vince Manno (Vice Chair), Lou Abernathy, Chris Hough (Secretary)
   b. Town Staff: Susan Habina-Woolard PE (Staff Liason)
   c. Others Present: Mark Tofano, resident, Michael Bywaletz RKA consultants
3. Approval of the Minutes from May 21, 2020 meeting – Stevens - Abernathy motioned, Stevens seconded, unanimous approval of May minutes
4. Announcements – Staff
   a. Silver Line task force has been assembled and confirmed by Board of Commissioners
5. Unfinished Business
   a. Town Vision Statement 1 – Stevens – TAC reviewed vision statement and how it should drive committee decisions
   b. Results of N. Trade St Crosswalk project bids – Habina reviewed results of bids, awarded contractor and schedule review
   c. Matthews Subarea traffic report and land use survey – Habina – Consultants are targeting 2018 traffic model, BoC is scheduled to discuss in July, 27th meeting at 5:30pm.
6. New Business – Habina
   a. No new rezoning cases
   b. Discussed welcome sign and landscape maintenance at Idlewild Rd & NC 51
   c. Reviewed status of NCDOT project list impacted by budget constraints
   d. Silver Line alignment – Reviewed alignment options presented by CATs to Board of Commissioners at May 26th, 2020 meeting, kickoff of Matthews Task Force

e. Review the TAC Bylaws Article IV – Stevens – reviewed existing membership articles. Members suggested modifications to Article but determined to revisit wording for formal motion at a future meeting
f. Town Committee appointment process – TAC reviewed memo from Town Clerk, discussed process but deferred changes.
g. Privette Rd alignment with Pleasant Plains Rd – deferred discussion to future meeting
h. Speed hump policy review - deferred discussion to future meeting

7. Adjournment – Stevens motioned to adjourn at 9:11pm, Manno seconded, unanimous approval

Current bylaws:

ARTICLE IV - MEMBERSHIP

Any member appointed to the Matthews Transportation Advisory Committee must be a resident of Matthews, NC. The Committee shall be composed of seven (7) members appointed by the Town Board of Commissioners. All members shall have voting rights. The Town's appointee to the Charlotte Transit Advisory Group (CTAG) shall be an ex-officio member of the Committee. The ex-officio member shall not be counted toward a quorum and shall only vote if the regular member votes have resulted in a tie. A town staff member will act as liaison to the Committee. Each citizen shall be appointed to a two-year term, and may serve an unlimited number of terms. If a vacancy shall occur on the Committee, then the position can be filled, upon recommendation of the Committee liaison and Chairman, by the Town Board of Commissioners.

Where possible, appointments shall be made in such a manner as to maintain on the Committee at all times at least two (2) members who have had special training or experience in planning, transportation engineering, or a related field.

Draft changes from June meeting

ARTICLE IV - MEMBERSHIP

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Where possible, appointments shall be made in such a manner as to maintain on the Committee at all times at least two (2) members who have had special training or experience in planning, transportation engineering, or a related field.

A. Statement of Traffic-Calming

The Town of Ayden is committed to:

- Improving the livability and safety of neighborhoods by mitigating the impacts of traffic and promoting safer conditions for residents, motorists, bicyclists, and pedestrians
- Installing traffic-calming measures on streets where their implementation will reduce traffic speeds, minimize through traffic where appropriate, or improve the safety of movements by pedestrians and bicyclists
- Implementing traffic-calming techniques that are both effective and compatible with the character of the affected neighborhoods and that improve public safety without jeopardizing emergency response needs, creating hazards, or reducing mobility beyond acceptable levels
- Encouraging citizen input in neighborhood traffic management
- Influencing driver behavior through education and design
- Ensuring that Town resources are utilized in a cost-effective and efficient manner.

To achieve these objectives, several procedures will be based on funding availability and the need for improvements as determined by the Town Board of Commissioners. Proposals for Traffic-Calming Facilities may be initiated by the Town Planning Board, the Board of Commissioners, individuals, or group entities.

The following procedures will be followed when considering requests for development, design and implementation of neighborhood traffic-calming measures. These general guidelines will be followed for traffic-calming requests, but cannot handle all traffic problems or situations in town. This policy addresses existing conditions on local roads as well as conditions that have evolved over time.

The Board of Commissioners does retain the right to install traffic calming measures on an as need basis upon determination of a need for public safety.

B. Problem Identification and Evaluation

1. Request for Neighborhood Traffic-Calming Measures:

Generally, a preliminary request containing signatures from at 60% of the residences or businesses on a given street shall be required for the town to begin consideration of a traffic-calming plan. Preliminary requests for traffic-calming measures on a specific street or streets may be made by (a) a resident, with the required signatures; (b) a business or property owner, with the required signatures; or (c) the Town Board of Commissioners and/or Planning Board. All

requests must be made in writing that identify the street(s) or area of concern and describe the nature of the problem.

2. Clarification and Preliminary Evaluation of Traffic-Calming Requests:

Upon receipt the Town Planning Office will discuss the request at the next regularly scheduled Planning Board meeting. A request must be submitted a minimum of three weeks prior to the Planning Board's next regularly scheduled meeting in order to guarantee being placed on the Board's agenda. Prior to the meeting, data will be collected and analyzed by town staff relating to the proposed request. Specifically, the following items will be analyzed and inventoried. If it is determined by staff that the requested roadway does not meet any two of the following criteria then the request will be denied and the applicants will be notified in writing. The applicants may appeal staffs formal determination to the Board of Commissioners within thirty days for further review and consideration.

1. The street shall have an Average Daily Traffic Count (ADT) of less than 1,000.
2. The requested roadway shall have only one lane of through traffic in each direction.
3. The requested roadway shall not be primary emergency routes.
4. The requested roadway shall not be through truck routes unless an acceptable alternative route is identified and approved.

If multiple projects are under consideration for installation, priority will be given to addressing traffic and safety concerns in the following areas:

- Streets that provide access to a public or private school, or represent major walk-to-school or bicycle-to-school routes
- Streets that are heavily traveled by pedestrian and bicycle populations seeking access to a public park, public/government building, or private facility
- Streets that have been programmed for reconstruction in the near future and thereby present opportunities to realize cost savings by undertaking all construction work simultaneously.

Requests generated from the public for a traffic calming measure may be funded through a graduated cost share formula. This formula is defined within **Attachment B** of this policy.

If a road is already programmed for reconstruction, the Town Planning Office will look at the appropriate data to determine if traffic-calming should be considered. In the case of new development, the developer may be required to pay for traffic-calming on streets affected by the new development, as well as any Needs Assessment, Traffic-Calming Plan and public outreach.

Following discussion and analysis of the traffic and safety problems relating to the request, the Town Planning Board will determine if the request merits further consideration. If it is determined by the Planning Board that a traffic-calming measure is necessary, then the Board will recommend to the Town's Board of Commissioners that further analysis and consideration should be undertaken.

If the data does not support further analysis, the Planning Board will make a negative recommendation regarding the request. The Board of Commissioners will make a final determination regarding the proposal and if it is determined that the request does not merit further review, then the process will be considered complete and the applicants will be notified in writing.

3. Determination of Need:

Following approval by the Board of Commissioners, a detailed assessment will be conducted to determine the most cost-effective approach to address the issues defined within the traffic-calming request. There may be areas in which an increased police enforcement presence, improved signage, and/or driver education will be sufficient to address the problems identified by neighborhood residents and confirmed to exist by the preliminary evaluation. Where physical modifications to the roadway environment are determined to be unnecessary, the town staff will work with neighborhood representatives to address their concerns and no further review under this policy will be required. In the event that traffic-calming measures are deemed necessary, a traffic-calming plan development process will be established.

C. Plan Development and Schematic Design

Based upon the determination of need, town staff (or its consultants) will identify and evaluate the applicability and likely effectiveness of a minimum of two traffic-calming measures. Alternative traffic-calming measures will include, but may not be limited to, such actions and devices as: chokers, neck downs, chicanes, center islands, raised crosswalks, raised intersections, roundabouts, traffic circles, speed humps, speed tables, textured pavement, one-way street designations, forced turn islands, median barriers, curbing, striping, etc. A description of each measure is provided in **Attachment A**.

Traffic-calming measures will be evaluated using the best information available on their applicability and effectiveness in addressing the specific problem, the technical feasibility of installing the devices properly within the constraints of the existing right-of-way, the relative costs of their construction, and the impacts they may have on emergency vehicle access, drainage, and maintenance.

The findings of this evaluation will be prepared in a report in conjunction with schematic designs of the chosen measure. Schematic designs for the traffic-calming measures will be prepared by Town staff or a qualified consultant. This report will identify the traffic-calming measures determined to be both feasible and effective in addressing the problems established in the evaluation. It will also identify the likely impacts on traffic flow, traffic speeds, and different user

groups that implementation of each feasible measure is likely to create. Estimates of construction and maintenance costs will also be included in the report.

When developing the schematic design for the chosen traffic-calming measure, the following general guidelines will apply:

a. All devices will be planned and designed in conformance with sound engineering practices and standards, and in consultation with other communities having experience with their implementation and maintenance. Such measures should not create an unsafe condition for motorists driving at normal speeds under average driving conditions.

b. Design of traffic calming features shall accommodate the efficient movement of a single unit truck.

c. The parking needs of residents must be balanced with the equally important functions of traffic, emergency vehicle access, and pedestrian safety. The design and installation of traffic-calming devices should avoid the removal of parking spaces wherever possible.

This report will identify the type, location, preliminary cost estimates, and design of the traffic-calming measure(s) determined to be both feasible and effective in addressing the identified problems found on the specific street.

The report and schematic(s) will be presented to the Board of Commissioners for review and consideration. The Board will provide an opportunity for public comment at meetings where a specific traffic-calming report/request is being considered. Input received at this meeting will be used to clarify the choices between alternative measures. The Board of Commissioners will consider the comments received through public comment when selecting a preferred traffic-calming measure that balances the neighborhood protection objectives of those residing along the affected street(s) with the mobility and economic development objectives of the town.

When determining which traffic control measures should be installed, Town Staff and the Board of Commissioners will utilize the following criteria:

- Expected benefits to safety and quality of life
- Neighborhood preference
- Maintenance needs
- Cost of construction
- Technical feasibility
- Space constraints
- Geometric constraints
- Drainage requirements

- Emergency service access

Following presentation of the traffic-calming alternatives, the Board of Commissioners will vote to approve the formal design and installation of the traffic calming facility deemed most appropriate for the location defined within the application request

D. Graduated Cost Share Scale

The cost share for all traffic calming request made by citizens will be dependent upon the nature of the traffic conditions within a respective neighborhood. The more severe traffic problems should receive a greater share of Town funds. The methodology for determining the cost share is defined within **Attachment B** of this policy. This methodology and funding criteria are subject to change by the Ayden Board of Commissioners at any time.

E. Implementation and Evaluation

Upon approval of a detailed design and implementation plan for a given traffic-calming request, detailed cost estimates and plans will be submitted for review and final approval by the Board of Commissioners. The Town Engineer, Consultant, or designee will prepare detailed construction plans and project cost for the approved traffic-calming measure.

To ensure that the approved traffic-calming measure achieves its intended effect, the town staff will also evaluate the effectiveness of the completed traffic-calming project within six months of device installation.

Upon a finding that a hazardous condition has been created by a traffic-calming measures, such condition will be remedied by notifying the Town Planning Office and immediately modifying or removing the contributing traffic control device or devices upon review and approval by the Board of Commissioners.

F. Definitions

1. Minor residential street (not a thruway): the lowest classification of residential street designed to serve not more than four proposed, potential, or existing dwelling units. It carries only the traffic that has its origin or destination on the lots which have access to the street. In nearly every case, the limitation of not more than four proposed, potential or existing dwelling units served means the street will be a dead end.

2. Local Street: the next street classification designed to serve five to fourteen proposed, potential, or existing dwelling units. It carries traffic that has its origin or destination in the immediate neighborhood, such as on the lots that have access to the street and from minor residential streets which connect to it. “Not a thruway” streets with more than five proposed, potential or existing dwelling units are classified as local streets.

3. Collector Street: Streets designed to serve 15 or more existing, proposed or potential dwelling units, or a commercial development in a commercial subdivision, and to act as a connection to other streets. It conducts and distributes traffic between lower classification streets and higher classification streets. In larger residential

developments, a collector street may be necessary to carry traffic from one neighborhood to another adjoining neighborhood or from the neighborhood to other areas in the Town.

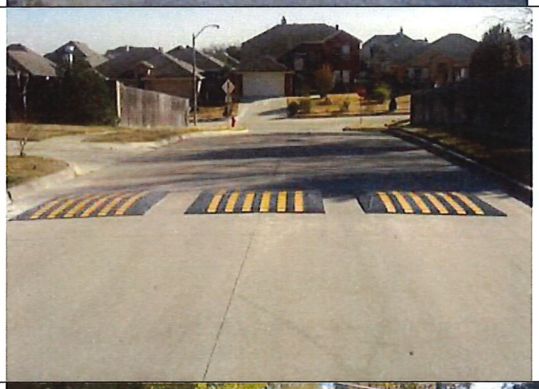
4. Arterial Street: the highest classification street designed primarily to carry through-traffic that does not have its origin or destination within a proposed subdivision. It carries traffic to and from commercial districts within Ayden, residential neighborhoods in Ayden that are a mile or more away, and to and from activity centers in adjoining cities and towns.

5. Traffic Count: a manual or automated count of the number of vehicles traversing a particular street in a given time period.

Attachment A:

Bike Lanes – A portion of a roadway, which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.	
Bulbouts/Neckdowns/Chokers – Curb extensions at intersections that reduce curb-to-curb roadway travel lane widths.	
Closures (Cul-de-sacs) - Barriers placed across roadways to completely close through vehicle traffic.	
Curb Extension/Medians – Curb extensions can be used to create a variety of horizontal traffic-calming measures such as roundabouts, chicanes, neckdowns and chokers.	
Diverters – Barriers placed diagonally across an intersection, blocking certain movements.	

Forced Turn Lanes – Raised islands located on approaches to an intersection that block certain movements.	
Police Enforcement - Involves employing the services of law enforcement agencies to impose the local safe vehicle laws, including those for posted speeds and traffic signals/signs.	
Raised Intersection – Raised flat areas covering entire intersections, with ramps on all approaches and often with brick or other textured materials on the flat section and ramps.	
Realigned Intersections – Changes in alignments that convert T-intersections with straight approaches into curving roadways meeting at right angles.	

Roundabouts – Barriers placed in the middle of an intersection, directing all traffic in the same direction. Speed Humps Rounded Raised pavement devices placed across roadways to slow and/or discourage traffic.	
Speed Humps - Raised devices, parabolic in shape, placed across the road to slow traffic. They are often considered the most traditional traffic-calming solution. Speed humps slow traffic more gradually than speed bumps, although less so than speed tables.	
Speed Cushions: Designed as three small speed humps, speed cushions force pedestrian vehicles to slow down. However, the wider axle of emergency vehicles allows them to pass without slowing down. In addition, speed cushions are more affordable than speed humps or tables since they require less material.	
Speed Tables – Flat-topped speed humps often constructed with a brick or other textured material to slow traffic.	

Speed Trailer- Portable speed trailers visually display drivers' real-time speeds compared to the speed limit.	
Traffic Circles – Barriers placed in the middle of an intersection, directing all traffic in the same direction. These are usually larger than roundabouts.	
Chicanes/Lateral Shifts – Curb extensions that alternate from one side of the roadway to the other, forming S-shaped curves.	
Education – Instructions given to the residents on safe on-street vehicle travel.	

Town of Matthews North Carolina

Susan Habina-Woolard <shwoolard@matthewsnc.gov>

Traffic Calming Devices

Vince Manno <tacm0903@gmail.com> Fri, Apr 3, 2020 at 3:42 PM
To: CJ O'Neill <cjoneill@matthewsnc.gov>, Susan Habina Woolard <shwoolard@matthewsnc.gov>
Cc: Bill Stevens <WJStevens2008@gmail.com>

Hi CJ and Susan,

Hope you guys are doing well as well as your families.
You asked us to look into traffic calming devices. Well it just so happens I had a few minutes time to research this topic. lol!

Many articles explained the negative of speed humps or speed bumps. As someone who opposes them I can relate to their reasoning especially the parts about responding emergency vehicles as I can personally testify. .Sorry for the different fonts. I did a lot of cut and pasting.

If you need more information let me know and i will see what i can find to help out.

Definition (obviously you guys know the meaning):
Visual **traffic calming** includes lane narrowings (9-10'), road diets (reduction in lanes), use of trees next to streets, on-street parking, and buildings placed in urban fashion close to streets.
Physical **devices** include speed humps, speed cushions and speed tables, sized for the desired speed.

Here is one idea I found. Not sure what the cost is because you have to call for a quote and I am not authorized to represent the town in asking for price quotes. Its called Radarsigns. We have already seen these on our streets lately which have been used by Matthews PD. They have been moving them around the town to various locations. I know this tends to work because like myself I don't look at my speedometer so I think i am driving at the correct speed only for the sign to flash at me saying I am speeding (don't tell Matthews PD I said that).The examples they show are a lot smaller and cleaner signs. Not the big bulky ones the PD is using.
https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.radarsign.com/why-municipalities-are-moving-away-from-speed-humps/&ved=2ahUKEwj7tOPGm8voAhVSn-AKHdiZBIMQFjADegQIARAB&usg=AOvVaw0L5hYH93LgzY1P_Prrj189&cshid=1585881745898

Another idea is rumble strips. They are pretty much a solution to all the negative factors if speed bumps. However, in a neighborhood or small town they can be very noisy I think. I dont feel the neighborhood will appreciate this noise every time someone drives over them. They are not a bad solution but way too loud.
Rumble strips, also known as **sleeper lines**, **alert strips**, **audible lines**, **sleepy bumps**, **wake up calls**,[1] **growlers**, **drift lines**, and **drunk bumps**, are safety feature to alert inattentive drivers of potential danger, by causing a tactile vibration and audible rumbling transmitted through the wheels into the vehicle interior. A rumble strip is applied along the direction of travel following an edgeline or centerline, to alert drivers when they drift from their lane. Rumble strips may also be installed in a series ***across*** the direction of travel, to warn drivers of a stop or slowdown ahead, or of an approaching danger spot. In favorable circumstances, rumble strips are effective (and cost-effective) at reducing accidents due to inattention. The effectiveness of shoulder rumble strips is largely dependent on a wide and stable road shoulder for a recovery, but there are several other less obvious factors that engineers consider during design.

The Town of Cary did a study, unfortunately over 10 years ago, but the information is not too bad in explaining the same thing we are trying to accomplish. It presented several options.
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Town of Cary

Home

- Requests are evaluated on a first-come, first-served basis.
- If a location is approved for study, there will be extensive data collection.
- A summary of results is provided for review.
- Town staff meets with neighborhood representatives to discuss concerns and design alternatives.
- Police and fire department representative reviews for any emergency response issues.
- A traffic calming concept plan is developed.
- Neighborhood petition requires 70 percent support.
- Town Council approval is also required.
- The neighborhood group must provide 25 percent of total construction costs before design occurs.

The Town offers technical support, however those requesting traffic calming devices are responsible for most of the work. The process can take six months to a year, depending on how often petition organizers revise their traffic calming plan to obtain neighborhood support. See the Traffic Calming Criteria and Guidelines for more information.

Traffic Calming Device Alternatives

Traffic calming devices are designed to reduce vehicular speed and to enhance the livability of streets throughout communities and neighborhoods for non-motorists. This is an effort to promote safe transportation facilities for motorists, cyclists, and pedestrians.

1. Passive Devices

Passive traffic calming measures are designed to mitigate potential speeding issues by providing non-invasive techniques to calm traffic. Passive measures include education methods, police enforcement, and parked cars on a street.

Educational Methods/Police Enforcement

Information is sent to communities to inform then on the dangers of speeding. Periodic radar enforcement is also conducted. A speed sentry unit is used to collect speed and volume data while displaying a motorists speed in an effort to educate the driver that their speed might be inappropriate. The speed sentry might be useful in raising driver awareness of their travel speed.

Parked Cars On Street

Parked cars on neighborhood streets can act as horizontal deflecting devices that narrow the width of the street. This gives drivers the feeling that the lane width between opposing vehicles is narrower, resulting in slower speeds.

2. Horizontal Deflecting Devices

Traffic Circle

A traffic circle is an elevated area in the middle of an intersection that allows the counter-

clockwise flow of traffic for low-speed operations.

Potential impacts:

- Effective in reducing speeds
- Decreases intersection-related crashes
- Right-of-way issues based on width of circle
- Emergency vehicles can easily maneuver
- Turning radius for larger vehicles (30 feet or greater)
- Landscaping the center island can visually enhance the street

Median/Raised Island

A median/raised island is an elevated area in the middle of a street that narrows opposing travel lanes to slow traffic. These types of devices are useful in narrowing wide streets with pavement widths of 30 feet or greater. Lane widths are narrowed to a minimum of 10 feet for traffic calming purposes.

Potential impacts:

- Effective in reducing speeds
- Constraining design to accommodate parking on the street
- Reduces the street crossing width for pedestrians
- Emergency vehicles can easily maneuver
- Landscaping the median/raised island can visually enhance the street

Choker/Neckdown

A choker is a physical constriction built along the curb to narrow a roadway. The choker extends the curb while widening the planting strip of a street. These types of devices work well in combination with speed humps and raised crosswalks. The design of the choker will limit lane widths to a minimum of 10 feet.

Potential impacts:

- Effective in reducing speeds when used in combination with other devices
- Constraining design to accommodate parking on the street
- Reduces the street crossing width for pedestrians
- Emergency vehicles can easily maneuver when used as a standalone measure
- Landscaping the extended area can visually enhance the street

3. Vertical Deflecting Devices

Speed Hump/Speed Table

Speed humps are devices installed on residential streets and commercial parking lots for the purpose of reducing motor vehicle speeds. In Cary, speed humps are constructed with asphalt and are 22 feet long with a maximum height of three inches. The Town installs two types of speed humps: parabolic and flat top. The design of the parabolic speed hump contains a 22-foot continuous run of asphalt that is parabolic shaped (semi-circle). The parabolic speed hump is designed for use in commercial areas.

The design of the flat top speed hump contains two six-foot, tapered sections with a 10-foot flat section in the middle. Since constructing the flat section at a three-inch height is difficult, typically a tolerance of 0.5 inches is given. The flat top speed hump is designed for use on residential streets. Spacing between speed humps range between 300 and 500 feet. When properly spaced, average speeds between speed humps range between 20 to 25 mph.

Potential impacts:

- Effective in reducing speeds (25 mph or less)

- Increased response times for emergency vehicles (0-10 seconds)
- Noise concerns due to deflection characteristics
- Increased speeding between humps when not spaced properly
- Studies show that speed humps do not impact home resale values
- Only appropriate on residential streets, not on collectors and roads with higher classifications

Raised Crosswalk

Raised crosswalks are devices installed on residential streets to reduce speeds while providing a marked crossing area for pedestrians. The design of the raised crosswalk is similar to the flat top speed hump. The 10-foot flat section is striped with thermoplastic pavement markings to designate a pedestrian crossing.

Potential impacts:

- Effective in reducing speeds (25 mph or less)
- Increased response times for emergency vehicles
- Noise concerns due to deflection characteristics
- Only appropriate on residential streets, not on collectors and roads with higher classifications.